7ZMMC

AMD Athlon^{TM}/Duron^{TM} Socket A Processor Motherboard

USER'S MANUAL

FCC Compliance Statement:

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-7ZMMC

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM high frequency equipment	☐ EN 61000-3-2* ☒ EN60555-2	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
☐ EN55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN61000-3-3* ☒ EN60555-3	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ EN 50081-1	Generic emission standard Part 1: Residual, commercial and light industry
		☒ EN 50082-1	Generic immunity standard Part 1: Residual, commercial and light industry
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 55081-2	Generic emission standard Part 2: Industrial environment
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 55082-2	Generic immunity standard Part 2: Industrial environment
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ ENV 55104	Immunity requirements for household appliances tools and similar apparatus
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or **distribution** from sound and television signals	☐ EN 50091- 2	EMC requirements for uninterruptible power systems (UPS)

☒ **CE marking**

CE (EC conformity marking)

The manufacturer also declares the conformity of above mentioned product
with the actual required safety standards in accordance with LVD 73/23 EEC

☐ EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ EN 60950	Safety for information technology equipment including electrical business equipment
☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Signature : Rex Lin

(Stamp)   Date : Jan. 15, 2001   Name :   Rex Lin

Table Of Content

Feature Summary

Form Factor	▪ 24.4 cm x 22.2 cm Micro ATX size form factor, 4 layers PCB.
CPU	▪ AMD Athlon^{TM}/Duron^{TM} (K7) Socket A Processor ▪ 256K/64K L2 cache on die ▪ Supports 600MHz ~ 1,2 GHz
Chipset	Pro Savage KM133, consisting of: ▪ VT8365 Memory/AGP/PCI Controller (PAC) ▪ VT82C686B PCI Super-I/O Integrated Peripheral Controller (PSIPC)
Clock Generator	▪ ICS 9248BF-141 ▪ 100/102/104/106/108/110/112/133 MHz system bus speeds
Memory	▪ 2 168-pin DIMM sockets ▪ Supports PC-100/133 and VCM SDRAM ▪ Supports up to 1.0GB DRAM ▪ Supports only 3.3V SDRAM DIMM
I/O Control	▪ VT82C686B
Slots	▪ 1 AGP slot supports 4X mode & AGP 2.0 compliant ▪ 3 PCI slots supports 33MHz & PCI 2.2 compliant ▪ 1 CNR (Communication and Networking Riser) slot (Not support LAN)
On-Board IDE	▪ 2 IDE bus master (UDMA 33/ATA 66/ATA 100) IDE ports for up to 4 ATAPI devices ▪ Supports PIO mode 3, 4 (UDMA 33/ATA 66/ATA 100) IDE & ATAPI CD-ROM
On-Board Peripherals	▪ 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes ▪ 1 parallel port supports Normal/EPP/ECP mode ▪ 1 serial port (COM A) ▪ 2 USB ports / 2 USB ports (optional)
Hardware Monitor	▪ CPU/System fan revolution detection ▪ CPU/Power/System fan control ▪ System voltage detection ▪ CPU/System temperature detection
PS/2 Connector	▪ PS/2 Keyboard interface and PS/2 Mouse interface
On-Board VGA	▪ Build S3 Savage4 (86C370) in VT8365 ▪ Support shared memory architecture
On-Board Sound	▪ Creative CT5880 sound (Optional) ▪ AC'97 CODEC ▪ Line In / Line Out / Mic In / AUX In / CD In / TEL / SPDIF (Optional) / Game Port / Four Speaker (Optional)
BIOS	▪ Licensed AMI BIOS, 2M bit flash ROM
Additional Features	▪ Support Wake-On-LAN (WOL) ▪ Support Internal / External Modem Ring On ▪ Support USB KB/MS Wake up from S3-S5 ▪ Includes 3 fan power connectors ▪ Poly fuse for keyboard over-current protection ▪ Support STR (Suspend-To-RAM) function

7ZMMC Motherboard Layout
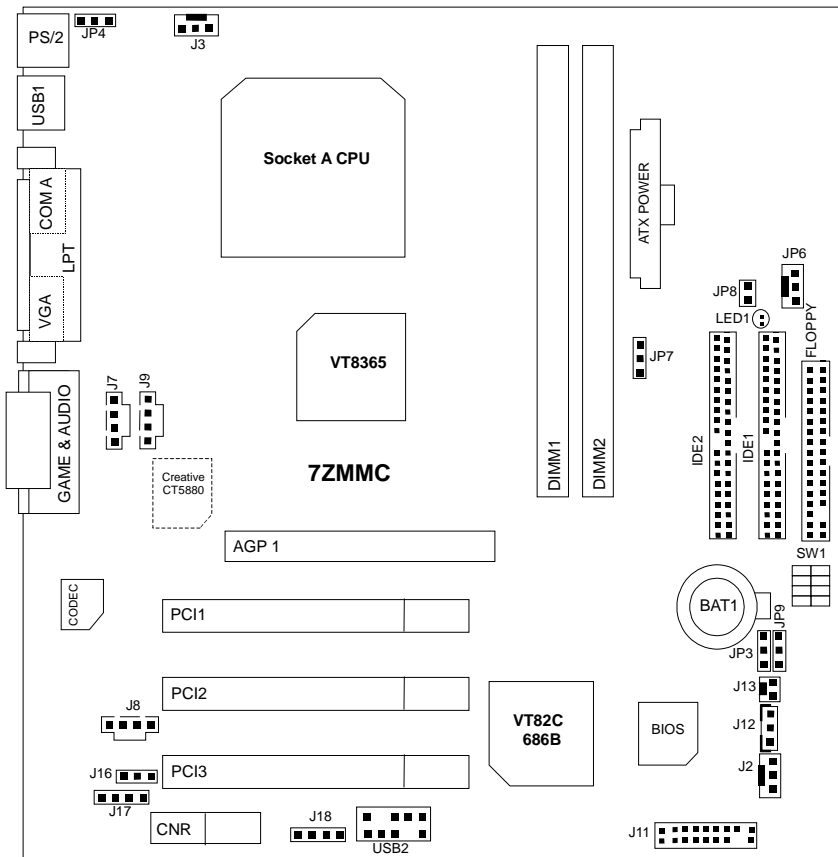
CPU Speed Setup

The system bus speed is selectable at 100MHz. The user can select the system bus speed by DIP switch **SW1**.

SW1: CPU Speed Setup
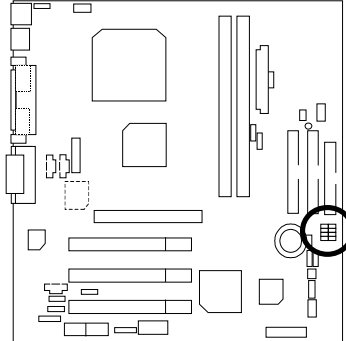
SW1:   **O: ON, X: OFF**

FSB	1	2	3	4
95	O	O	X	O
100	X	O	X	X
102	0	0	X	X
103	X	O	X	O
107	O	X	O	0
110	0	X	0	X
113	X	X	O	O
115	X	X	X	0
133	X	X	X	X

✍**AMD CPU Heat Sink Installation:**
Beware: Please check that the heat sink is in good contact with the CPU before you turn on your system.
   The poor contact will cause over heat, and might cause damage to your processor.

Connectors

ATX Power
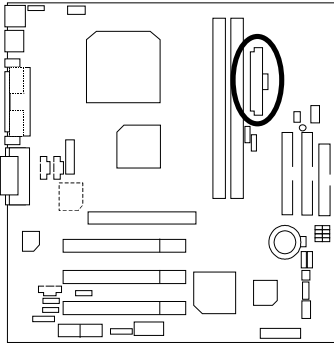
Pin No.	Definition
3,5,7,13, 15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB stand by+5V
14	PS-ON(Soft On/Off)

COM A / VGA / LPT Port

LPT Port

COM A   VGA

Floppy Connector

FDD1

Red Line

Game & Audio Port

Game Port

Line Out 1   MIC In

Line In/Line Out 2
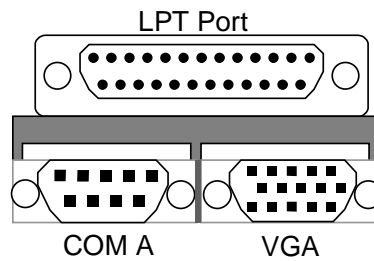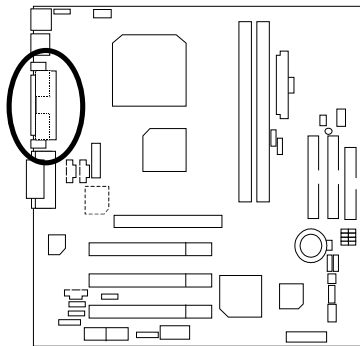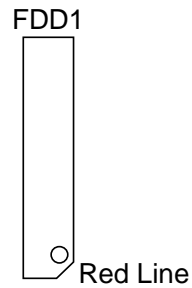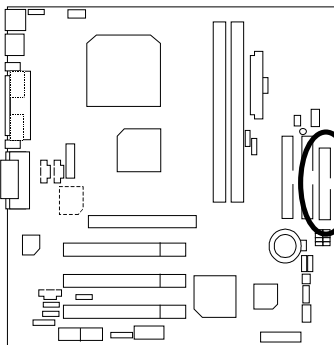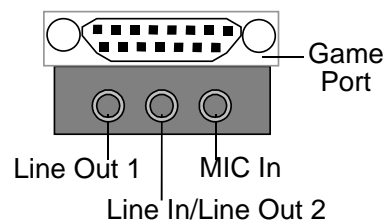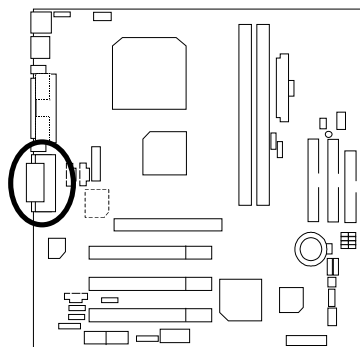
IDE1 (Primary), IDE2 (Secondary) Connector

IDE 2 IDE 1

Red Line

J2: Sysem Fan

1
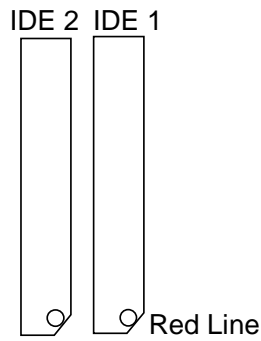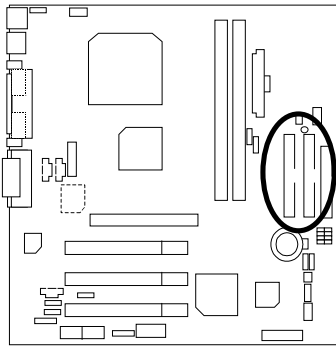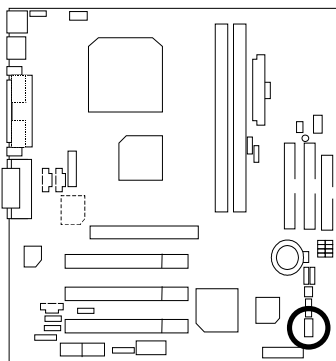
Pin No.	Definition
1	Control
2	+12V
3	SENSE

J3: CPU Fan

1
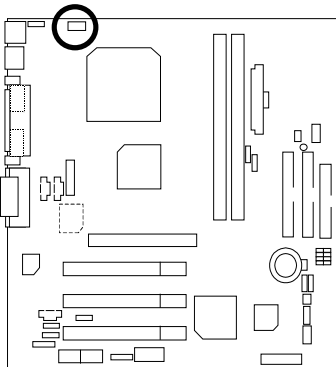
Pin No.	Definition
1	Control
2	+12V
3	SENSE

J7: AUX_IN

1
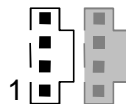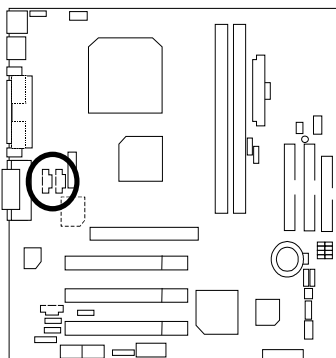
Pin No.	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

J8 TEL: The connector is for Modem with internal voice connector
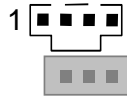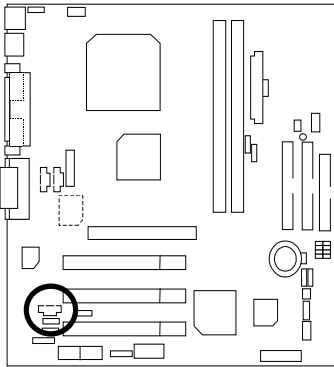
Pin No.	Definition
1	Signal-In
2	GND
3	GND
4	Signal-Out

J9: CD Audio Line In
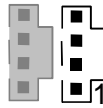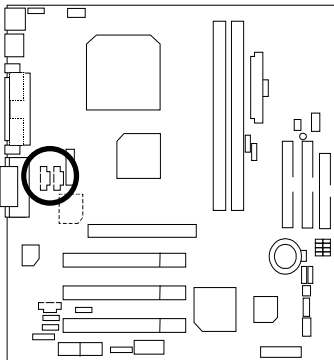
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

J12: Wake On LAN
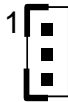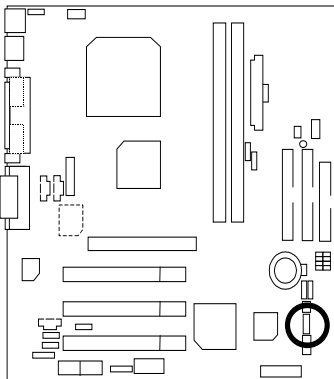
Pin No.	Definition
1	+5V SB
2	GND
3	Signal

J13: Ring Power On (Internal Modem Card Wake Up)
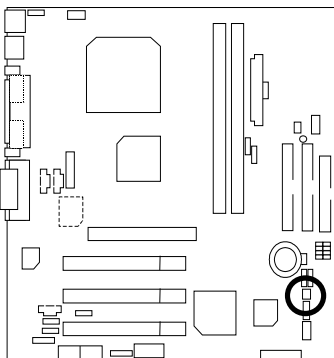
Pin No.	Definition
1	Signal
2	GND

JP6: Power Fan
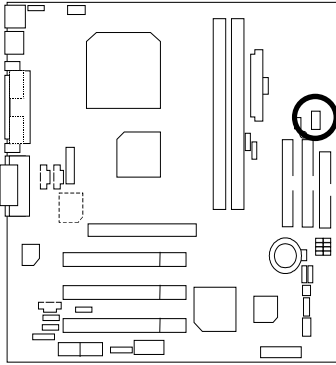
Pin No.	Definition
1	Control
2	+12V
3	NC

JP8 / LED1: STR LED Connector & DIMM LED
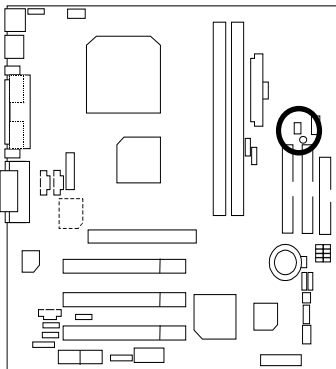
STR LED Connector External.

1

DIMM LED

PS/2 Keyboard & PS/2 Mouse Port
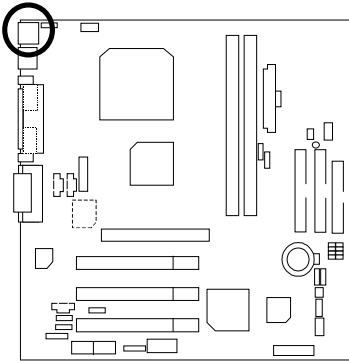
PS/2 Mouse
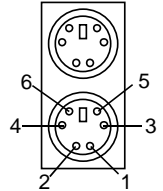
PS/2 Keyboard

PS/2 Mouse/Keyboard	
Pin No.	Definition
1	Data
2	NC
3	GND
4	VCC(+5V)
5	Clock
6	NC

USB 1: Rear USB Port
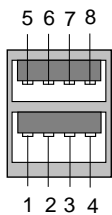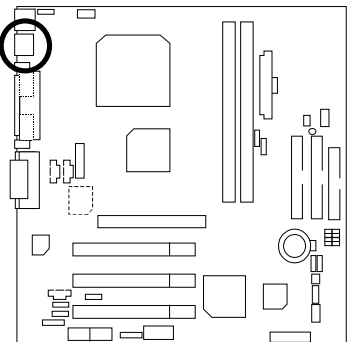
Pin No.	Definition
1	USB V0
2	USB D0-
3	USB D0+
4	GND
5	USB V1
6	USB D1-
7	USB D1+
8	GND

USB 2: Front USB Connector
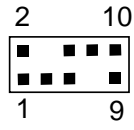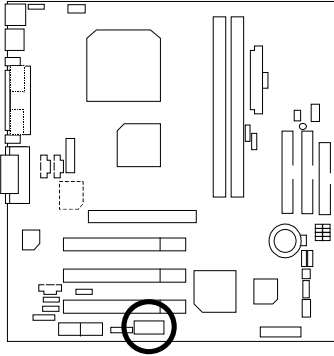
Pin No.	Definition
1	+5V
2	GND
3	USB D2-
4	NC
5	USB D2+
6	USB D3+
7	NC
8	USB D3-
9	GND
10	+5V

Panel And Jumper Definition

BAT1: Battery
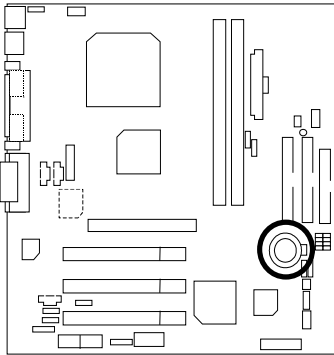
CAUTION
☞ Danger of explosion if battery
  is incorrectly replaced.
☞ Replace only with the same or
  equivalent type recommended
  by the manufacturer.
☞ Dispose of used batteries
  according to the manufacturer's
  instructions.

J11: 2x11 Pins Front Panel
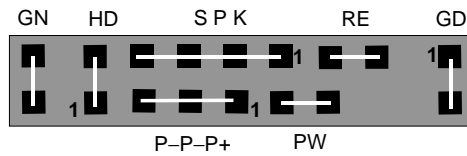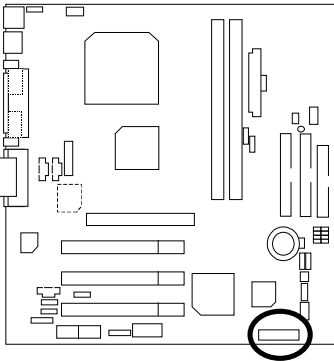
GN (Green Switch)	Open: Normal Operation
	Close: Entering Green Mode
GD (Green LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(−)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(−)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(−)
RE (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
P+P−P−(Power LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(−)
	Pin 3: LED cathode(−)
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off

J16 /J17/J18: CNR (Primary or Secondary) Select [Optional]
(CNR→ Communication and Networking Riser)
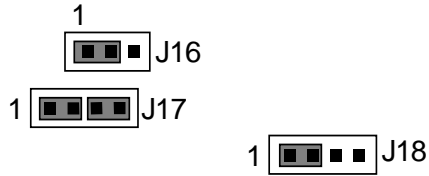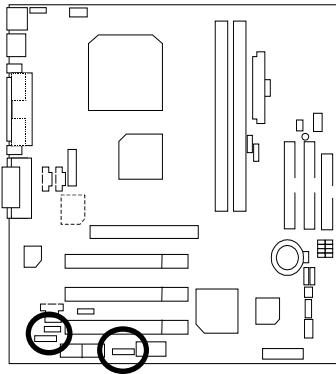
	J16	J17	J18
Onboard AC97	1-2	1-2	1-2
CNR (Primary)	2-3	3-4	3-4
Onboard AC97 CNR (Secondary) [Optional]	1-2	1-2 3-4	1-2

JP3: Clear CMOS Function (Optional)
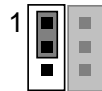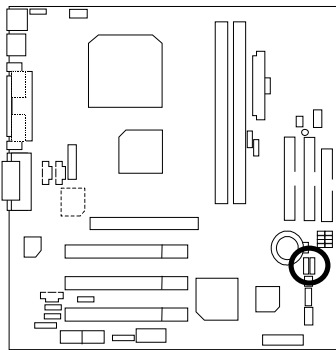
Pin No.	Definition
1-2 close	Normal (Default)
2-3 close	Clear CMOS

JP4: USB Device Wake up Selection
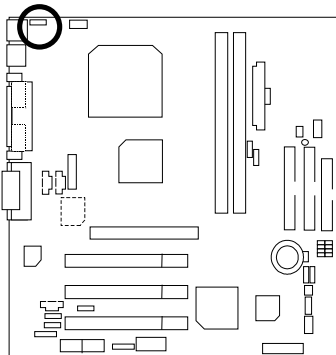
Pin No.	Definition
1-2 close	Normal (Default)
2-3 close	USB Device Wake up

(If you want to use "**USB Dev Wakeup from S3~S5**" function, you have to set the BIOS setting "USB Dev Wakeup from S3~S5" enabled, and the jumper "**JP4**" enabled)
*(Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item "**POWER MANAGEMENT SETUP**", then select "**USB Dev Wakeup from S3~S5**". Remember to save the setting by pressing "ESC" and choose the "SAVE & EXIT SETUP" option.)

JP7: STR Function Enable
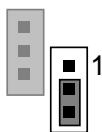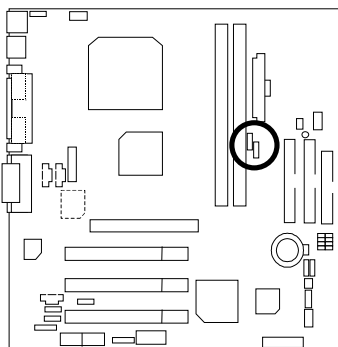
Pin No.	Definition
1-2 close	STR Enable
2-3 close	Normal (Default)

JP9: BIOS Write Protect Function
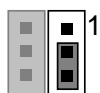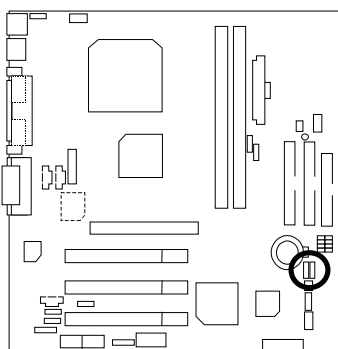
Pin No.	Definition
1-2 close	Write Protect Enable
2-3 close	Write Protect Disable (Default)

☝Please set Jumper JP9 to "2-3 close" to enabled BIOS write function when you update new BIOS or new device.

Memory Installation

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot .The DIMM module can only fit in one direction due to the two notch. Memory size can vary between sockets.

Install memory in any combination table:

DIMM	168-pin SDRAM DIMM Modules	
DIMM 1	Supports 16 / 32 / 64 / 128 / 256 / 512 MB	X 1 pcs
DIMM 2	Supports 16 / 32 / 64 / 128 / 256 / 512 MB	X 1 pcs

Total System Memory (Max 1.0GB)

BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Power ON the computer and press <Del> immediately will allow you to enter Setup. If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the system case. You may also restart by simultaneously press <Ctrl> − <Alt>− <Del> keys.

CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
<F7>	Load the Setup Defaults
<F8>	Reserved
<F9>	Reserved
<F10>	Save all the CMOS changes, only for Main Menu

GETTING HELP

Main Menu
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu
Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu

Once you enter AMI BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC : Quit ↑↓←→ : Select Item (Shift) F2 : Change Color F5 : Old Values	
F6 : Load BIOS Defaults F7: Load Setup Defaults F10: Save & Exit	
Time, Date, Hard Disk Type, …	

Figure 1: Main Menu

● **Standard CMOS Setup**

This setup page includes all the items in standard compatible BIOS.

● **BIOS Features Setup**

This setup page includes all the items of AMI special enhanced features.

● **Chipset Features Setup**

This setup page includes all the items of chipset special features.

● **Power Management Setup**

This setup page includes all the items of Green function features.

● **PnP/PCI Configurations**

This setup page includes all the configurations of PCI & PnP ISA resources.

● **Load BIOS Defaults**

Bios Defaults indicates the value of the system parameter which the system would be in the safe configuration.

● **Load Setup Defaults**

Setup Defaults indicates the value of the system parameter which the system would be in the most appropriate configuration.

● **Integrated Peripherals**

This setup page includes all onboard peripherals.

● **Hardware Monitor Setup**

This setup page is auto detect fan and temperature status.

● **Supervisor password**

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

● **User password**

Change, set, or disable password. It allows you to limit access to the system.

● **IDE HDD auto detection**

Automatically configure hard disk parameters.

● **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

● **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

The items in Standard CMOS Features Menu (Figure 2) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
                  AMIBIOS SETUP – STANDARD CMOS SETUP
             ( C ) 1999 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy) : Tue  Jan 25, 2000
Time (hh/mm/ss)  : 10:36:24
                     TYPE   SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE

Pri Master  : Auto
Pri Slave   : Auto
Sec Master  : Auto
Sec Slave   : Auto

Floppy Drive A: 1.44 MB 3 ½             Base Memory : 640 Kb
Floppy Drive B: Not Installed           Other Memory: 384 Kb
                                        Extended Memory: 30Mb
Boot Sector Virus Protection : Disabled Total Memory: 31Mb


Month:   Jan – Dec                 ESC : Exit
 Day:   01  – 31                   ↑↓  : Select Item
 Year : 1990– 2099                  PU/PD/+/– : Modify
                               (Shift)F2  : Color
```

Figure 2: Standard CMOS Setup

● **Date**

The date format is <Week> <Month> <Day>, <Year>.

Week	The week, from Sun to Sat, determined by the BIOS and is display-only
Month	The month, Jan. Through Dec.
Day	The day, from 1 to 31 (or the maximum allowed in the month)
Year	The year, from 1990 through 2099

● **Time**

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

● **Primary Master, Slave / Secondary Master, Slave**

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and user definable type. User type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

CYLS.	Number of cylinders
HEADS	number of heads
PRECOMP	write precomp
LANDZONE	Landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

- **Floppy Drive A / Drive B**

  The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

None	No floppy drive installed
360K, 5.25 in.	5.25 inch PC-type standard drive; 360K byte capacity.
1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity
1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

- **Boot Sector Virus Protection**

  If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table. **(Default Value)**

- **Memory**

  The category is display-only which is determined by POST (Power On Self Test) of the

  BIOS.

  Base Memory

  The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

  The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

  Extended Memory

  The BIOS determines how much extended memory is present during the POST.

  This is the amount of memory located above 1 MB in the CPU's memory address map.

  Other Memory

  This refers to the memory located in the 640 K to 1024 K address space. This is memory that can be used for different applications.

  DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM

BIOS Features Setup

```
                    AMIBIOS SETUP – BIOS FEATURES SETUP
             ( C ) 1999 American Megatrends, Inc. All Rights Reserved
┌──────────────────────────────────┬──────────────────────────────────┐
│ 1st Boot Device          Floppy   │                                  │
│ 2nd Boot Device          CDROM    │                                  │
│ 3rd Boot Device          IDE-0    │                                  │
│ S.M.A.R.T. for Hard Disks Disabled│                                  │
│ BootUp Num-Lock          On       │                                  │
│ Floppy Drive Seek        Disabled │                                  │
│ Password Check           Setup    │                                  │
│                                   │                                  │
│                                   │                                  │
│                                   ├──────────────────────────────────┤
│                                   │ ESC : Quit       ↑↓→ ←: Select Item│
│                                   │ F1  : Help       PU/PD+/-/ : Modify│
│                                   │ F5  :Old  Values    (Shift)F2:Color│
│                                   │ F6  : Load BIOS Defaults          │
│                                   │ F7  : Load SETUP Defaults         │
└──────────────────────────────────┴──────────────────────────────────┘
```

Figure 3: BIOS Features Setup

- **1st / 2nd / 3rd Boot Device**

Floppy	Boot Device by Floppy.
ZIP A: / LS120	Boot Device by ZIP A: / LS120.
CDROM	Boot Device by CDROM.
SCSI	Boot Device by SCSI.
NETWORK	Boot Device by NETWORK.
USB FDD	Boot Device by USB FDD.
IDE-0~IDE-3	Boot Device by IDE-0~IDE-3.
Disabled	Boot Device by Disabled.
ATAPI ZIP C:	Boot Device by ATAPI ZIP C:.

- **S.M.A.R.T. for Hard Disks**

Enabled	Enable S.M.A.R.T. Hard for Disks.
Disabled	Disable S.M.A.R.T. Hard for Disks. **(Default Value)**

- **Boot Up Num-Lock**

On	Keypad is number keys. **(Default Value)**
Off	Keypad is arrow keys.

- **Floppy Drive Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360 type is 40 tracks while 720 , 1.2 and 1.44 are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720, 1.2 or 1.44 drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360. **(Default Value)**

- **Password Check**

Setup	Set Password Check to Setup. **(Default Value)**
Always	Set Password Check to Always.

Chipset Features Setup

```
                    AMIBIOS SETUP – CHIPSET FEATURES SETUP
                ( C ) 1999 American Megatrends, Inc. All Rights Reserved
  ┌─────────────────────────────────────────┬──────────────────────────────────┐
  │ Configure Timing by SPD      Enabled     │                                  │
  │  DRAM Frequency              Auto        │                                  │
  │  SDRAM CAS# Latency          Auto        │                                  │
  │                                          │                                  │
  │ AGP Mode                     4X          │                                  │
  │ AGP Comp. Driving            Auto        │                                  │
  │ Manual AGP Comp. Driving     CB          │                                  │
  │ AGP Fast Write               Disabled    │                                  │
  │ AGP Aperture Size            64MB        │                                  │
  │ ClkGen Spread Spectrum       Enabled     │                                  │
  │ USB Controller               USB Port 0&1│                                  │
  │ USB Legacy Support           Disabled    │                                  │
  │                                          ├──────────────────────────────────┤
  │                                          │ ESC : Quit        ↑↓→ ←: Select Item │
  │                                          │ F1   : Help       PU/PD+/-/ : Modify │
  │                                          │ F5   :Old  Values   (Shift)F2:Color  │
  │                                          │ F6   : Load BIOS Defaults        │
  │                                          │ F7   : Load SETUP Defaults       │
  └─────────────────────────────────────────┴──────────────────────────────────┘
```

Figure 4: Chipset Features Setup

- **Configure Time by SPD**

Disabled	Disable Configure Time by SPD function.
Enabled	Enable Configure Time by SPD function. **(Default Value)**

- **DRAM Frequency**

Auto	Set DRAM Frequency to Auto. **(Default Value)**
100MHz	Set DRAM Frequency to 100MHz.
133MHz	Set DRAM Frequency to 133MHz.

- **SDRAM CAS# Latency**

Auto	Detect SDRAM CAS# Latency by SPD. **(Default Value)**
2	For Fastest SDRAM DIMM module.
3	For Slower SDRAM DIMM module.

- **AGP Mode**

4X	Set AGP Mode to 4X. **(Default Value)**
1X	Set AGP Mode to 1X.
2X	Set AGP Mode to 2X.

- **AGP Comp. Driving**

Auto	Set AGP Comp. Driving to Auto. **(Default Value)**
Manual	Set AGP Comp. Driving to Manual.

If AGP Comp. Driving is Manual.

Manual AGP Comp. Driving:	00~FF

- **AGP Fast Write**

Enabled	Enable AGP Fast Write function.
Disabled	Disable this function. **(Default Value)**

- **AGP Aperture Size**

4MB	Set AGP Aperture Size to 4MB.
8MB	Set AGP Aperture Size to 8 MB.
16MB	Set AGP Aperture Size to 16 MB.
32MB	Set AGP Aperture Size to 32 MB.
64MB	Set AGP Aperture Size to 64 MB. **(Default Value)**
128MB	Set AGP Aperture Size to 128 MB.
256MB	Set AGP Aperture Size to 256 MB.

- **ClkGen Spread Spectrum**

Disabled	Disable ClkGen Spread Spectrum.
Enabled	Enable ClkGen Spread Spectrum. **(Default Value)**

- **USB Controller**

All USB Port	Set USB Controller to All USB Port.
Disabled	Disable USB Controller.
USB Port 0&1	Set USB Controller to USB Port 0&1. **(Default Value)**
USB Port 2&3	Set USB Controller to USB Port 2&3.

- **USB Legacy Support**

Keyboard/FDD	Set USB Legacy Support Keyboard / Floppy.
KB/Mouse/FDD	Set USB Legacy Support Keyboard / Mouse / Floppy.
Disabled	Disable USB Legacy Support Function. **(Default Value)**

Power Management Setup

```
                    AMIBIOS SETUP – POWER MANAGEMENT SETUP
                 ( C ) 1999 American Megatrends, Inc. All Rights Reserved
  ACPI Standby State              S1/POS      RTC Alarm Hour          12
  USB Dev Wakeup From S3~S5       Disabled    RTC Alarm Minute        30
  Suspend Time Out (Minute)      Disabled    RTC Alarm Second        30
  Display Activity               Ignore
  IRQ3                           Monitor
  IRQ4                           Monitor
  IRQ5                           Ignore
  IRQ7                           Monitor
  IRQ9                           Ignore
  IRQ10                          Ignore
  IRQ11                          Ignore
  IRQ13                          Ignore
  IRQ14                          Monitor
  IRQ15                          Ignore
  Soft-Off by Power Button       Instant-Off
  System after AC Back           Last State   ESC : Quit         ↑↓→ ←: Select Item
  Resume On Ring/LAN             Enabled      F1  : Help         PU/PD+/-/ : Modify
  Resume On PME#                 Enabled      F5  :Old Values       (Shift)F2:Color
  Resume On RTC Alarm            Disabled     F6   : Load BIOS Defaults
   RTC Alarm Date                15           F7   : Load SETUP Defaults
```

Figure 5: Power Management Setup

- **ACPI Standby State**

S1/POS	Set ACPI Standby State to S1. **(Default Value)**
S3/STR	Set ACPI Standby State to S3.

- **USB Dev Wakeup From S3~S5**

Enabled	Enable USB Dev Wakeup from ACPI S3, S4 and S5 mode.
Disabled	Disable USB Dev Wakeup from ACPI S3, S4 and S5 mode. **(Default Value)**

- **Suspend Time Out (Minute.)**

Disabled	Disable Suspend Time Out Function. **(Default Value)**
1	Enable Suspend Time Out after 1min.
2	Enable Suspend Time Out after 2min.
4	Enable Suspend Time Out after 4min.
8	Enable Suspend Time Out after 8min.
10	Enable Suspend Time Out after 10min.
20	Enable Suspend Time Out after 20min.
30	Enable Suspend Time Out after 30min.
40	Enable Suspend Time Out after 40min.
50	Enable Suspend Time Out after 50min.
60	Enable Suspend Time Out after 60min.

- **Display Activity**

Ignore	Ignore Display Activity. **(Default Value)**
Monitor	Monitor Display Activity.

- **IRQ 3~IRQ15**

Ignore	Ignore IRQ3 ~IRQ15.
Monitor	Monitor IRQ3~IRQ15.

- **Soft-off by Power Button**

Instant-off	Soft switch ON/OFF for POWER ON/OFF. **(Default value)**
Suspend	Soft switch to enter Suspend Mode.

- **System after AC Back**

Last State	System power on depends on the status before AC lost. **(Default Value)**
Off	Always in Off state when AC back.
On	Always power on the system when AC back.

- **Resume On Ring / LAN**

Disabled	Disable Resume On Ring / LAN.
Enabled	Enable Resume On Ring / LAN. **(Default Value)**

- **Resume On PME#**

Disabled	Disable Resume On PME#.
Enabled	Enable Resume On PME#. **(Default Value)**

- **Resume On RTC Alarm**

You can set "Resume On RTC Alarm" item to enabled and key in Data/time to power on system.

Disabled	Disable this function. **(Default Value)**
Enabled	Enable alarm function to POWER ON system.

If the default value is Enabled.

RTC Alarm Date:	Every Day, 1~31
RTC Alarm Hour:	0~23
RTC Alarm Minute:	0~59
RTC Alarm Second:	0~59

PNP/PCI Configurations

```
         AMIBIOS SETUP – PNP / PCI CONFIGURATION
       ( C ) 1999 American Megatrends, Inc. All Rights Reserved
 ┌──────────────────────────────────┬──────────────────────────────────┐
 │ VGA Frame Buffer Size    16MB     │                                  │
 │ VGA Boot from            PCI      │                                  │
 │ IRQ 3                    PCI/PnP  │                                  │
 │ IRQ 4                    PCI/PnP  │                                  │
 │ IRQ 5                    PCI/PnP  │                                  │
 │ IRQ 7                    PCI/PnP  │                                  │
 │ IRQ 9                    PCI/PnP  │                                  │
 │ IRQ 10                   PCI/PnP  │                                  │
 │ IRQ 11                   PCI/PnP  │                                  │
 │ IRQ 14                   PCI/PnP  │                                  │
 │ IRQ 15                   PCI/PnP  │                                  │
 │                                   ├──────────────────────────────────┤
 │                                   │ ESC: Quit       ↑↓→ ←: Select Item│
 │                                   │ F1   : Help     PU/PD+/-/ : Modify│
 │                                   │ F5  :Old Values  (Shift)F2:Color  │
 │                                   │ F6   : Load BIOS Defaults         │
 │                                   │ F7   : Load SETUP Defaults        │
 └──────────────────────────────────┴──────────────────────────────────┘
```

Figure 6: PNP/PCI Configuration

- **VGA Frame Buffer Size**

8MB	Set VGA Frame Buffer Size to 8MB.
16MB	Set VGA Frame Buffer Size to 16MB. **(Default Value)**
32MB	Set VGA Frame Buffer Size to 32MB.

- **VGA Boot From**

AGP	Primary Graphics Adapter From AGP.
PCI	Primary Graphics Adapter From PCI. **(Default Value)**

- **IRQ (3, 4, 5, 7, 9, 10, 11, 14, 15)**

ISA/ EISA	The resource is used by Legacy ISA device.
PCI / PnP	The resource is used by PCI/ PnP device. **(Default Value)**

Load BIOS Defaults

```
┌─────────────────────────────────────────────────────────────┐
│         AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a            │
│      ( C ) 1999 American Megatrends, Inc. All Rights Reserved │
├──────────────────────────────┬──────────────────────────────┤
│ STANDARD CMOS SETUP          │ INTEGRATED PERIPHERALS        │
│                              │                               │
│ BIOS FEATURES SETUP          │ HARDWARE MONITOR SETUP        │
│                              │                               │
│ CHIPSET FEATURES SETUP       │ SUPERVISOR PASSWORD           │
│                              │                               │
│ POWER MANAGEMENT SETUP       │ USER PASSWORD                 │
│                              │                               │
│ PNP/PCI CONFIGU  Load BIOS Defaults (Y/N)? N     TION        │
│                              │                               │
│ LOAD BIOS DEFAULTS           │ SAVE & EXIT SETUP             │
│                              │                               │
│ LOAD SETUP DEFAULTS          │ EXIT WITHOUT SAVING           │
├──────────────────────────────┴──────────────────────────────┤
│ ESC : Quit    ↑↓→← : Select Item   (Shift) F2 : Change Color    F5 : Old Values │
│ F6 : Load BIOS Defaults      F7: Load Setup Defaults      F10: Save & Exit │
├──────────────────────────────────────────────────────────────┤
│            Load BIOS Default except Standard CMOS Setup       │
└──────────────────────────────────────────────────────────────┘
```

Figure 7: Load BIOS Defaults

- **Load BIOS Defaults**

  BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Setup Defaults

```
            AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a
            ( C ) 1999 American Megatrends, Inc. All Rights Reserved

  STANDARD CMOS SETUP            INTEGRATED PERIPHERALS

  BIOS FEATURES SETUP            HARDWARE MONITOR SETUP

  CHIPSET FEATURES SETUP         SUPERVISOR PASSWORD

  POWER MANAGEMENT SETUP         USER PASSWORD

  PNP/PCI CONFIGU     Load SETUP Defaults (Y/N)? N    CTION

  LOAD BIOS DEFAULTS             SAVE & EXIT SETUP

  LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING

  ESC : Quit    ↑↓→← : Select Item   (Shift) F2 : Change Color   F5 : Old Values
  F6 : Load BIOS Defaults       F7: Load Setup Defaults    F10: Save & Exit

            Load Setup Default except Standard CMOS Setup
```

Figure 8: Load Setup Defaults

● **Load Setup Defaults**

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Integrated Peripherals

```
                AMIBIOS SETUP – INTEGRATED PERIPHERALS
           ( C ) 1999 American Megatrends, Inc. All Rights Reserved
 OnBoard FDC              Auto
 OnBoard Serial Port 1    Auto
 OnBoard Parallel Port    Auto
  Parallel Port Mode      EPP
  Parallel Port DMA       N/A
  Parallel Port IRQ       Auto
 OnBoard IDE              Both
 OnBoard AC'97 Audio      Auto
 OnBoard MC'97 Modem      Auto


  MPU-401                 Disabled
    MPU-401 I/O Address   330h-333h


                                    ESC: Quit        ↑↓→←: Select Item
                                    F1  : Help       PU/PD+/-/ : Modify
                                    F5  :Old  Values    (Shift)F2:Color
                                    F6  : Load BIOS Defaults
                                    F7  : Load SETUP Defaults
```

Figure 9: Integrated Peripherals

- **Onboard FDC**

Auto	Auto detect OnBoard Floppy disk controller. **(Default value)**
Enabled	Enable OnBoard Floppy disk controller.
Disabled	Disable OnBoard Floppy disk controller.

- **On Board Serial Port 1**

Auto	BIOS will automatically setup the port 1 address. **(Default Value)**
3F8/COM1	Enable on Board Serial port 1 and address is 3F8.
2F8/COM2	Enable on Board Serial port 1 and address is 2F8.
3E8/COM3	Enable on Board Serial port 1 and address is 3E8.
2E8/COM4	Enable on Board Serial port 1 and address is 2E8.
Disabled	Disable on Board Serial port 1.

- **OnBoard Parallel port**

378	Enable On Board LPT port and address to 378.
278	Enable On Board LPT port and address to 278.
3BC	Enable On Board LPT port and address to 3BC.
Auto	Set On Board LPT port to Auto. **(Default Value)**
Disabled	Disable On Board LPT port.

- **Parallel Port Mode**

EPP	Using Parallel port as Enhanced Parallel Port. **(Default Value)**
ECP	Using Parallel port as Extended Capabilities Port.
Normal	Normal Operation.
EPP+ECP	Using Parallel port as Enhanced Parallel Port & Extended Capabilities Port.

- **Parallel Port DMA**

N/A	Disable this function. **(Default Value)**
Auto	Set Auto to parallel port mode DMA Channel.
3	Set Parallel Port DMA to 3.
1	Set Parallel Port DMA to 1.
0	Set Parallel Port DMA to 0.

- **Parallel Port IRQ**

7	Set Parallel Port IRQ to 7.
Auto	Set Auto to parallel Port IRQ DMA Channel. **(Default Value)**
5	Set Parallel Port IRQ to 5.

- **OnBoard IDE**

Disabled	Disable OnBoard IDE.
Both	Set OnBoard IDE to Both. **(Default Value)**
Primary	Set OnBoard IDE to Primary.
Secondary	Set OnBoard IDE to Secondary.

- **OnBoard AC'97 Audio**

Auto	Auto detect OnBoard AC'97 Audio. **(Default Value)**
Disabled	Disable OnBoard AC'97 Audio.

- **OnBoard MC'97 Modem**

Auto	Auto detect OnBoard MC'97 Modem. **(Default Value)**
Disabled	Disable OnBoard MC'97 Modem.

- **MPU-401**

Enabled	Enable MPU-401.
Disabled	Disable MPU-401. **(Default Value)**

   Ps. When Force Feedback joystick is used, MPU-401 needs to be Enable.

- **MPU-401 I/O Address**

330h-333h	Set MPU-401 I/O Address to 330h-333h. **(Default Value)**
300h-303h	Set MPU-401 I/O Address to 300h-303h.
310h-313h	Set MPU-401 I/O Address to 310h-313h.
320h-323h	Set MPU-401 I/O Address to 320h-323h.

Hardware Monitor

```
..................................................................................................................
                      AMIBIOS SETUP – HARDWARE MONITOR SETUP
                  ( C ) 1999 American Megatrends, Inc. All Rights Reserved
..................................................................................................................
 CPU Temperature              47°C/116°F
 System Temperature           32°C/89°F
 CPU Fan Speed                7123 RPM
 System Fan Speed             0 RPM
 Vcore                        1.750 V
 Vdd                          3.050 V
 Vcc3                         3.340 V
 +5.000V                      4.996 V
 +12.000V                     12.166 V



                                             ESC: Quit          ↑↓→ ←: Select Item
                                             F1   : Help        PU/PD+/-/ : Modify
                                             F5   :Old  Values  (Shift)F2:Color
                                             F6   : Load BIOS Defaults
                                             F7   : Load Setup Defaults
```

Figure 10: Hardware Monitor

- **CPU Temperature. (°C / °F)**

  Detect CPU Temperature automatically.

- **System Temperature. (°C / °F)**

  Detect System Temperature automatically.

- **CPU Fan Speed**

  Detect CPU Fan speed status automatically.

- **System Fan Speed**

  Detect System Fan speed status automatically.

- **Voltage (V) Vcore / Vdd / Vcc3 / +5V / +12V**

  Detect system's voltage status automatically.

Set Supervisor / User Password

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

```
                   AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a
                  ( C ) 1999 American Megatrends, Inc. All Rights Reserved

  STANDARD CMOS SETUP                  INTEGRATED PERIPHERALS

  BIOS FEATURES SETUP                  HARDWARE MONITOR SETUP

  CHIPSET FEATURES SETUP               SUPERVISOR PASSWORD

  POWER MANAGEMENT SETUP               USER PASSWORD

  PNP/PCI CONFIGUR        Enter new supervisor password:     ON

  LOAD BIOS DEFAULTS                   SAVE & EXIT SETUP

  LOAD SETUP DEFAULTS                  EXIT WITHOUT SAVING

  ESC : Quit   ↑↓→← : Select Item   (Shift) F2 : Change Color   F5 : Old Values
  F6 : Load BIOS Defaults      F7: Load Setup Defaults     F10: Save & Exit

                        Chang /Set /Disabled Password
```

Figure 11: Password Setting

Type the password, up to six characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "**PASSWORD DISABLED**" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords: a **SUPERVISOR PASSWORD** and a **USER PASSWORD**. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "**Always**" at "**Password Check**" in BIOS Features Setup Menu, you will be
prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "**Setup**" at "**Password Check**" in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD AUTO Detection

```
                AMIBIOS SETUP – STANDARD CMOS SETUP
            ( C ) 1999 American Megatrends, Inc. All Rights Reserved

 Date (mm/dd/yyyy) : Tue Jan 25, 2000
 Time (hh/mm/ss)  : 10:36:24
           TYPE   SIZE  CYLS  HEAD  PRECOMP  LANDZ SECTOR  MODE

 Pri Master  : Not Installed
 Pri Slave   : Not Installed
 Sec Master : Not Installed
 Sec Slave  : Not Installed

 Floppy Drive A:  1.44 MB 3 ½          Base Memory : 640 Kb
 Floppy Drive B:  Not Installed        Other Memory: 384 Kb
                                       Extended Memory: 31Mb
 Boot Sector Virus Protection : Disabled   Total Memory: 32Mb

 Month:   Jan – Dec              ESC : Exit
  Day:   01  – 31               ↑↓  : Select Item
  Year :  1990– 2099            PU/PD/+/–  : Modify
                           (Shift)F2   : Color
```

Figure 12: IDE HDD Auto Detection

Type "Y" will accept the H.D.D. parameter reported by BIOS.

Type "N" will keep the old H.D.D. parameter setup. If the hard disk cylinder number is over 1024, then the user can select LBA mode or LARGER mode for DOS partition larger than 528 MB.

Save & Exit Setup

```
┌─────────────────────────────────────────────────────────────────┐
│           AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a              │
│        ( C ) 1999 American Megatrends, Inc. All Rights Reserved   │
├──────────────────────────────┬──────────────────────────────────┤
│ STANDARD CMOS SETUP          │ INTEGRATED PERIPHERALS            │
│                              │                                   │
│ BIOS FEATURES SETUP          │ HARDWARE MONITOR SETUP            │
│                              │                                   │
│ CHIPSET FEATURES SETUP       │ SUPERVISOR PASSWORD               │
│                              │                                   │
│ POWER MANAGEMENT SETUP       │ USER PASSWORD                     │
│                              │                                   │
│ PNP/PCI CONFIG┌───────────────────────────┐TION                 │
│              │  SAVE to CMOS and EXIT(Y/N)? Y │                  │
│ LOAD BIOS DEF│                           │                      │
│              └───────────────────────────┘                      │
│ LOAD SETUP DEFAULTS          │ EXIT WITHOUT SAVING               │
├──────────────────────────────┴──────────────────────────────────┤
│ ESC : Quit   ↑↓→← : Select Item   (Shift) F2 : Change Color   F5 : Old Values │
│ F6 : Load BIOS Defaults      F7: Load Setup Defaults    F10: Save & Exit │
├─────────────────────────────────────────────────────────────────┤
│                  Save Data to CMOS & Exit Setup                  │
└─────────────────────────────────────────────────────────────────┘
```

Figure 13: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

Exit Without Saving

```
+----------------------------------------------------------------+
|            AMIBIOS SIMPLE SETUP UTILITY-VERSION 1.24a           |
|         ( C ) 1999 American Megatrends, Inc. All Rights Reserved|
+------------------------------+---------------------------------+
| STANDARD CMOS SETUP          | INTEGRATED PERIPHERALS          |
|                              |                                 |
| BIOS FEATURES SETUP          | HARDWARE MONITOR SETUP          |
|                              |                                 |
| CHIPSET FEATURES SETUP       | SUPERVISOR PASSWORD             |
|                              |                                 |
| POWER MANAGEMENT SETUP       | USER PASSWORD                   |
|                              |                                 |
| PNP/PCI CONFIG    Quit without saving (Y/N) ? N    CTION       |
|                                                                |
| LOAD BIOS DEFA                                                  |
|                              |                                 |
| LOAD SETUP DEFAULTS          | EXIT WITHOUT SAVING             |
+------------------------------+---------------------------------+
| ESC : Quit    ↑↓→← : Select Item  (Shift) F2 : Change Color   F5 : Old Values |
| F6 : Load BIOS Defaults     F7: Load Setup Defaults    F10: Save & Exit |
+----------------------------------------------------------------+
|               Abandon all Datas & Exit Setup                   |
+----------------------------------------------------------------+
```

Figure 14: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

Appendix: Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Interface Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory
SMP	Symmetric Multi-Processing
SMI	System Management Interrupt
USB	Universal Serial Bus
VID	Voltage ID